

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: First Energy Corporation

Facility Address: 2nd and Maury Streets, Richmond, VA

Facility EPA ID #: VAD086293719

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

 √ If yes - check here and continue with #2 below.

 If no - re-evaluate existing data, or

 If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are nearterm objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 2

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	_____	_____	<u>✓</u>	<u>Possible RCRA metals, VOCs, & SVOCs</u>
Air (indoors) ²	_____	<u>✓</u>	_____	_____
Surface Soil (e.g., <2 ft)	_____	_____	<u>✓</u>	<u>Possible RCRA metals, VOCs, & SVOCs</u>
Surface Water	_____	<u>✓</u>	_____	_____
Sediment	_____	<u>✓</u>	_____	_____
Subsurf. Soil (e.g., >2 ft)	_____	_____	<u>✓</u>	<u>Possible RCRA metals, VOCs, & SVOCs</u>
Air (outdoors)	_____	<u>✓</u>	_____	_____

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

_____ If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

✓ _____ If unknown (for any media) - skip to #6 and enter “IN” status code.

(Note: “Unknowns” are carried through with “Yes” determination ascertaining if additional information is needed or if risks are negligible.)

Rationale and Reference(s):

Site Description:

The former First Energy Corporation (FEC) wastewater treatment facility is located on a fenced, approximately 1-acre parcel at the intersection of 2nd and Maury Streets in Richmond, Virginia (Facility). A large building (metal, approximately 5,000 square feet) occupies the central portion of the site. The remainder of the site contains a trailer formerly used to store tools, supplies and miscellaneous equipment including sampling equipment for wastewater, two concrete containment areas and gravel covered areas (See Figure 2).

Wastewater is no longer treated at the Facility. During its operation, the Facility treated wastewater in tanks using microorganisms to remove the contaminants. Treated wastewater was then discharged to the City of Richmond publicly-owned treatment works (POTW) pursuant to a pretreatment permit. Wastewater treatment was accomplished in the treatment building using eight (8) aboveground storage tanks (ASTs) and an oil/water separator. The equipment consisted of:

- three 550-gallon ASTs (including a surge tank)
- three 20,000-gallon Frac Tanks
- one 15,000-gallon AST
- one 2,000-gallon AST
- one oil/water separator

There were also three (3) 8,000-gallon tank trucks onsite and 27 drums on the outside containment pad. Finally, there was a 20 cubic yard roll-off onsite.

The Corrective Action (CA) investigations and any necessary clean up activities at the facility are being implemented in accordance with the conditions and requirements of a Consent Agreement/Consent Order

(CA/CO) issued to the facility by the Environmental Protection Agency Region III (EPA) and a Facility Lead Agreement (FLA) between the facility and the EPA.

The CA/CO was issued on June 14, 1999 (U.S. EPA Docket No.: RCRA-III-278). The CA/CO specified fourteen compliance tasks to be completed, including removal of all wastes from the Facility, decontamination of the concrete floor and pads, and, if FEC elected not to continue treatment activities, decontamination and removal of all tanks and equipment.

In 1999, equipment and associated wastewater residuals were cleaned; the associated wastes were characterized and properly removed from the site in accordance with a CA/CO. FEC submitted documentation of completion of these tasks to both EPA and the Virginia Department of Environmental Quality (VDEQ). The EPA then responded with a letter dated December 28, 1999, acknowledging completion of the compliance tasks, with the exception of the Part B Permit Application. FEC elected not to pursue issuance of a Permit, and therefore, did not submit a Part B Permit Application.

Although all containers, tanks, vessels, and equipment were removed in 1999, FEC has not met "clean closure" and the remaining activities are: 1) to conduct an assessment of the cracks in the concrete containment surfaces and 2) to conduct an assessment and possible removal of soil beneath any cracks that breach the concrete containment surfaces.

On June 28, 2006, EPA, VDEQ and facility representatives conducted a RCRA Site Visit to identify SWMUs and AOCs at the Facility. Four (4) Solid Waste Management Units (SWMUs) and one (1) Area of Concern (AOCs) were identified during the visit (Figure 2) and these SWMUs and the AOC are summarized in a RCRA Site Visit Report dated November 27, 2006. Thereafter, FEC submitted a *Sampling and Analysis Plan* (SAP), dated June 2007 which was approved on January 30, 2008.

On April 21, 2008, FEC submitted a letter of commitment and entered into a FLA with the EPA. Thereafter, FEC submitted to the DEQ, a *Closure Plan & Phase I RFI Work Plan*, dated July 2008 (Jul08 CP & RFI WP). The Phase I RFI Work Plan was a requirement under the FLA.

Currently, FEC and the DEQ are working on resolving the outstanding issues regarding the Facility's CP and RFI WP. Soil and subsoil sampling will be conducted and evaluated in accordance with the Facility's approved Closure Plan, SAP, and RFI WP.

Reference(s):

- ◆ Closure Plan, May 1996
- ◆ RCRA Site Visit Report, dated November 27, 2006
- ◆ Sampling and Analysis Plan, dated June 2007
- ◆ Draft Closure Plan and Phase I RFI Work Plan, July 2008
- ◆ Draft Closure Plan, dated May 2009

Footnotes:

¹ "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 3

3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

<u>Contaminated Media</u>	<u>Potential Human Receptors (Under Current Conditions)</u>						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
Air (indoors)							
Soil (surface, e.g., <2 ft)	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not “contaminated”) as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media – Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

✓ _____ If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) -- continue after providing supporting explanation.

_____ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

Groundwater

Residents: The site is located in a heavily developed and commercial/industrial portion of the City of Richmond, VA. There is no information indicating the presence of residents on the facility. Groundwater is currently not used as a potable or irrigation water supply at or near the FEC facility. The facility was provided potable water from the local municipality. Groundwater usage by properties surrounding or located in close proximity to the facility is unknown.

Workers: Groundwater is not currently used as a potable or irrigation water supply at the facility. The facility was provided potable water from the local municipality. The plant is no longer in operation. There are no workers on the facility and access to the facility is limited to authorized visitors by the owners.

Day-Care: Groundwater usage in the area is unknown. There is no information indicating the presence of a day-care on the facility.

Construction: The plant is no longer in operation. There are currently no planned construction activities at the site. The available hydrologic data suggests that groundwater is present in the upper sediments at a depth of between 10 to 20 feet at the vicinity of the facility. When groundwater sampling occurs, the Facility's approved Sampling and Analysis Plan will be implemented, which includes a Health and Safety Plan, providing procedures to protect workers from exposure to groundwater contamination if it exists at the site.

Trespassers: The entire FEC facility is surrounded by a chain link fence. The available hydrologic data suggests that groundwater is present in the upper sediments at a depth of between 10 to 20 feet at the vicinity of the facility. Therefore, groundwater would not cause any harm should trespassers enter the site.

Recreation: There is no information indicating that any part of the facility is for recreational use.

Food: The site is located in a heavily developed and commercial/industrial portion of the City of Richmond, VA. There is no information that food is grown within the facility boundary.

Soil (Surface and Subsurface):

Residents: The site is located in a heavily developed and commercial/industrial portion of the City of Richmond, VA. There is no information indicating the presence of residents on the facility. The entire FEC facility is surrounded by a chain link fence and access to the facility is limited to authorized visitors by the owners.

Workers: The plant is no longer in operation. There are no workers on the facility and access to the facility is limited to authorized visitors by the owners.

Day-Care: There is no information indicating the presence of a day-care on the facility.

Construction: The plant is no longer in operation. There are currently no planned construction activities at the site. When soil and subsoil sampling occurs, the Facility's approved Sampling and Analysis Plan will be implemented, which includes a Health and Safety Plan, providing procedures to protect workers from exposure to soil/subsoil contamination if it exists at the site.

Trespassers: The entire FEC facility is surrounded by a chain link fence. No chemicals or waste material is stored at the facility to cause any harm should trespassers enter the site.

Recreation: There is no information indicating that any part of the facility is for recreational use.

Food: The site is located in a heavily developed and commercial/industrial portion of the City of Richmond, VA. There is no information that food is grown within the facility boundary.

Reference(s):

- ◆ Closure Plan, May 1996
- ◆ RCRA Site Visit Report, dated November 27, 2006
- ◆ Sampling and Analysis Plan, dated June 2007
- ◆ Draft Closure Plan and Phase I RFI Work Plan, July 2008
- ◆ Draft Closure Plan, dated May 2009

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 4

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

 ✓ If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

 If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

 If unknown (for any complete pathway) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

The facility is no longer in operation and it is undergoing closure. All containers, tanks, vessels, and equipment were removed. The facility will be investigating soils and subsoils under the solid waste management units (SWMUs) and areas of concern (AOC) under a DEQ approved Closure Plan and Site Investigation Work Plan, under Facility Lead Agreement. All site investigation work would require a Health and Safety Plan to protect workers in accordance with OSHA requirements.

Reference(s):

- ◆ Closure Plan, May 1996
- ◆ RCRA Site Visit Report, dated November 27, 2006
- ◆ Sampling and Analysis Plan, dated June 2007
- ◆ Draft Closure Plan and Phase I RFI Work Plan, July 2008
- ◆ Draft Closure Plan, dated May 2009

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

Page 5

If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code 125 (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

✓ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the First Energy Corporation facility, EPA ID # VAD086293719, located at Richmond, Virginia under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - "Current Human Exposures" are NOT "Under Control."

 IN - More information is needed to make a determination.

Completed by: (signature) Alonso
(print) Angela Alonso
(title) Environmental Engineer

Date 9/1/09

Supervisor: (signature) Durwood Willis
(print) Durwood Willis
(title) Director, Office of Remediation Programs
(EPA Region or State) VA DEQ

Date 9/1/09

Locations where References may be found:

VA Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Contact telephone and e-mail numbers

(name) Angela Alonso
(phone #) (804) 698-4328
(e-mail) Angela.Alonso@deq.virginia.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

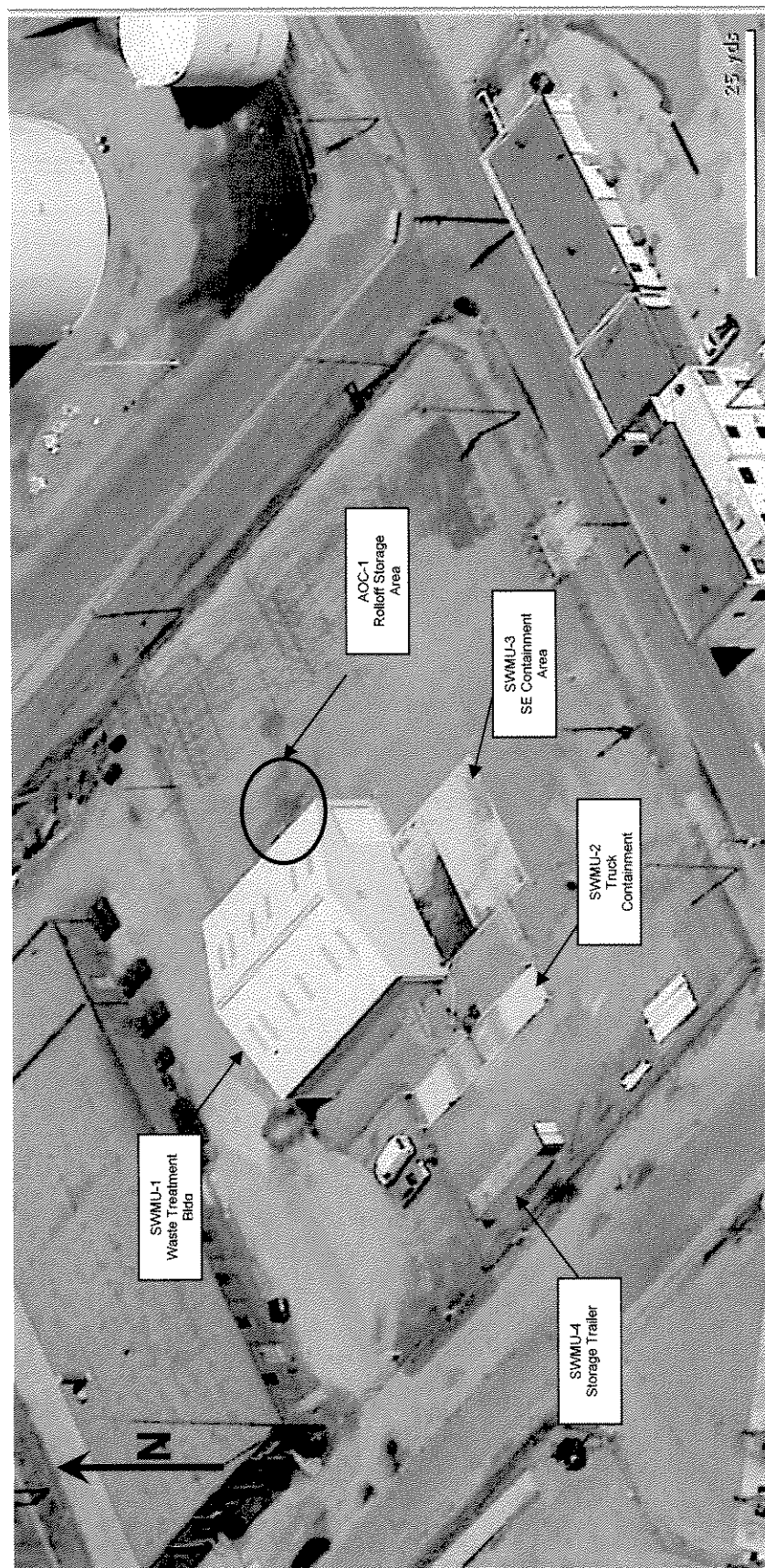


Figure 2 Aerial photo (undated) showing SWMUs and AOCs

